Series 5100/6100™
Voice/Data Router

Web Interface Manual

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About this manual

About this manual

Audience

This manual is written for the technical staff of a service provider, who are responsible for the installation and configuration of a Vpacket 5100/6100 Voice/Data Router (VDR). These users include, but are not limited to, network technicians, systems administrators, and network operation staff.

Content summary

This manual contains all of the information you need to configure the data and voice features of a 5100/6100 VDR via the WEB interface. Table 1 lists the chapters and a summary of content for each chapter.

Table 1. Chapter summaries

Chapter title	Contents
Chapter 1 About the web interface	Contains information about the Vpacket web interface and logon procedures; includes help procedures
Chapter 2 Node options	Contains procedures for image management, saving, and rebooting
Chapter 3 Alarm options	Contains procedures for viewing and configuring alarms
Chapter 4 Settings options	Contains procedures for configuring available WAN and LAN data features
Chapter 5 Monitor options	Contains information about viewing the IP Routing Table
Chapter 6 VQoS	Contains procedures for testing and monitoring call quality
Chapter 7 Web utilities	Contains procedures for VDR account administration and access lists

Conventions

This manual uses typeface, syntax, and messages to alert you to information of special interest.

Typefaces

Table 2 lists the typefaces that are used in this manual.

Table 2. Typefaces and their meanings

Typeface	Description
Bold	Designates menus, commands, and parameters
`Courier`	Designates output resulting from a command issued by a user and messages issued via a telnet or terminal-emulation screen

Command syntax

The syntax of commands is described using the following conventions:

- Angle brackets (<fill_in_the_blank >) denote required parameters or arguments.
- Square brackets ([ ]) denote optional elements.
- A pipe (|) separates choices.

Messages

Notes, cautions, and warnings are posted throughout the manuals to give supplementary information and encourage safety awareness and safe practices.

Notes

Notes are supplemental information requiring your attention.

For example:

Note. Please remember to go to the Vpacket Web site and complete the online Warranty Registration Card. Doing so registers your Vpacket 5100/6100 VDR and allows you to receive the latest information, technical support, and upgrades applicable to your unit.

Cautions

Cautions are information requiring extra attention.

For example:

Caution. No system-level confirmation message appears during the deletion.

Warnings

Warnings are information that, if not followed, could result in injury or equipment damage.

For example:

Warning. Use of longer screws could result in damage to internal components.

Related documentation

The documentation set related to the Vpacket 5100/6100 VDR includes all documents on the CD-ROM that was shipped with the unit:

- *Vpacket 5100/6100 Series Voice/Data Router Installer's Guide, Release 2.1* (P/N 750-00??-001)
- Quick Start Guides
  - *T1 and dual T1 Quick Start Guide*
  - *SDSL Quick Start Guide*
  - *Ethernet WAN Quick Start Guide*
  - *T1-PRI Voice Quick Start Guide*
- V*packet 5100/6100 Series Voice/Data Router Datasheet*

The reference manual is broken down into four sections allowing you to print only the sections that apply to your network environment:

- *Vpacket 5100/6100 Series Voice/Data Router Reference Manual (Data Features)*
- *Vpacket 5100/6100 Series Voice/Data Router MGCP Telephony Configuration*
- *Vpacket 5100/6100 Series Voice/Data Router SIP Telephony Configuration*
- *Vpacket 5100/6100 Series Voice/Data Router H.323 Telephony Configuration*

Contact information

For more information about the Vpacket 5100/6100 Series VDRs, please contact us using any of the following methods.

Voice calls

We welcome your calls at 1(866) 872-2538 (VPACKET) Monday through Friday, from 9:00 am to 6:00 pm Pacific Time. Voice mail is available during non-business hours.

E-mail

If you prefer, you can send information requests to our e-mail address: info@vpacket.com

Fax number

You can also send your requests for information to our 24-hour fax number:

1(408) 433-5870

Website

Our website contains valuable information about our products. We encourage you to visit us at http://www.vpacket.com

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CHAPTER 1
About the web interface

Overview

The Web Management Interface provides a comprehensive suite of functions (configuration management, fault monitoring, diagnostics, and performance monitoring) for managing Vpacket edge network systems in converged broadband networks. It allows management of the 6100 VDR using a Web browser. The Web management interface provides an alternative method for device management compared to the SNMP-based Vpacket Network Management System (VNMS) and CLI (console and telnet).

The Web interface consists of seven main menus with selectable options and a Logout button:

- Node
- Alarm
- Settings
- Monitor
- Utility
- Voice QoS
- Log out
- Help

Node menu

The node menu is for viewing and managing the configuration of the 6100 VDR.

The following options reside within the node menu:

- **status** (lets you view the system configuration)
- **import** (allows image and configuration file upload from an external file server)
- **export** (allows binary image and configuration file exchange between the VDR and an external file server)
- **save settings** (saves the system configuration information in the main memory to the configuration file)
- **reboot** (power-cycles the VDR)

Alarm menu

The alarm menu is for managing system alarms.

The alarm options are:

- **display** (lists the latest system events in the VDR)
- **control** (controls sending SNMP traps from the VDR to external destinations)

Settings menu

The settings menu allows you to display and set the VDR configuration.

The settings options are:

- **wan** (manages the WAN interface)
- **lan** (manages the LAN interface)
- **system** (configures the descriptive information displayed in the System Status window)
- **voice** (manages the voice services)
- **dhcp** (configures the VDR as a DHCP client or server)
- **nat** (enables or disables the Network Address Translation function and manages port mapping)
- **ntp** (enables the use of the Network Timing Protocol and the configuration of its parameters)
- **route** (displays the IP Routing Table and provides a means for managing static IP route entries in the IP Routing table)
- **rip** (enables or disables the RIP routing feature)

Monitor menu

The monitor menu allows you to view the IP Routing Table information.

The monitor option is **ip route**, which displays the IP Routing Table.

Utility menu

The utility menu allows you to access system-level tools.

The utility options are:

- **ping** and **trace route** (at this time, accessed through the CLI)
- **user management** (provides access to the user table to create and control users)
- **acl** (allows the use and management of access control lists)

Voice QoS menu

Voice QoS menu allows you to remotely monitor and test the quality of voice services from the 6100 VDR.

The voice QoS options are:

- **monitor control** (a VQS feature that enables or disables voice quality monitoring on the 6100 VDR)
- **monitor result** (a VQS feature that displays Voice QoS monitoring results)

- **test control** (a VQM feature that allows testing a specific destination number offline, in an accurate manner)
- **test result** (a VQM feature that allows you to view the results of a voice quality test)

Logout command

The **logout** selection is a command that terminates the current session and returns you to the logon screen. You must confirm this action (Figure 1-1).

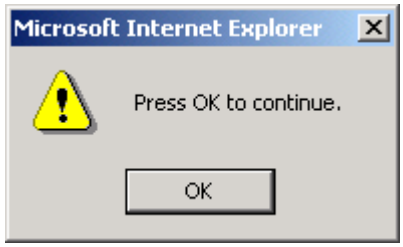

Figure 1-1. Logout confirmation dialog

Help menu

The help menu allows you to access information about this application and an online help system.

The help options are:

- **about** (displays information about the software release and copyright)
- **guide** (points your browser to the Vpacket web site)

Accessing the Web Interface for the first time

To access the web interface for the first time, first you need to connect the VDR to a LAN (See "Chapter 3 Port connections" in the *Vpacket 5100/6100 Series Installer's Guide* for details). After making the physical connections, you can follow these steps.

To launch the web interface for the first time

1. Open a web browser of your choice.

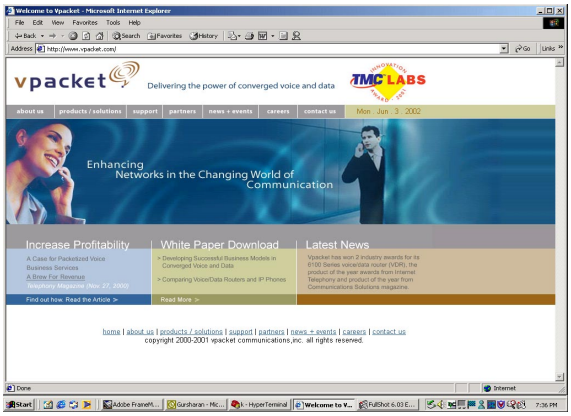

Figure 1-2. Browser window

2. Enter the default Ethernet IP address: http://192.168.0.254 and then **Enter**.

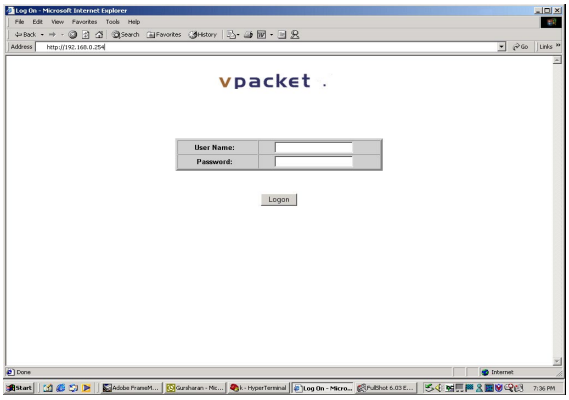

Figure 1-3. Logging on

3. Log on by entering the default user name: **admin** (or your previously configured user name)
4. Enter the default password: **admin** (or your previously configured password)

Launching the Web Interface

You can launch the Web Management Interface, which is directly embedded in the 6100 VDR, by following these steps. Figure 1-4 shows the Web Management Interface logon window.

To launch the Web interface

1. Launch your Web browser.
2. Point your browser to the IP address of the VDR by entering HTTP://<IP address of your VDR>. (for example, 192.168.0.254 or your WAN IP address)
3. When the login window appears, enter your login name and then **Tab**.
4. Enter your password and **Tab**.
5. Press **Enter**. Initially, there are two users: admin/admin with root privileges and user/user with read privileges.

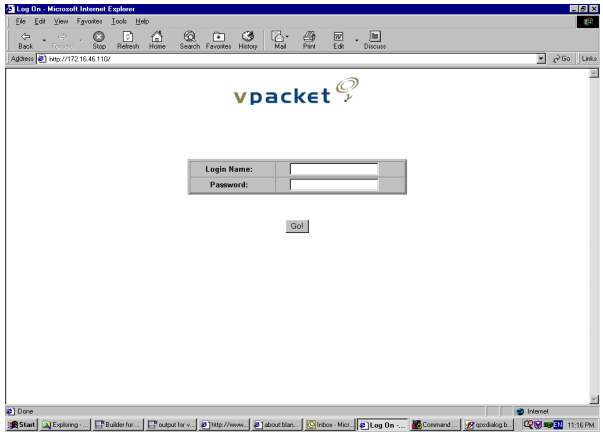

Figure 1-4. Web Management Interface logon window

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CHAPTER 2
Node options

Overview

The node menu is for viewing and managing the configuration of the 6100 VDR.

The following options reside within the node menu:

- **status** lets you view the system configuration
- **import** allows image and configuration file upload from an external file server
- **export** allows binary image and configuration file exchange between the VDR and an external file server
- **save settings** saves the system configuration information in the main memory to the configuration file
- **reboot** power-cycles the VDR

From the various windows you can perform the following tasks:

- Viewing the System Status window
- “Importing files” on page 13
- “Exporting files” on page 15
- “Saving recent changes” on page 16
- “Rebooting” on page 16

Viewing the System Status window

When you load the Web Management Interface, the System Status Window is the first screen that you see. This window lists all the currently configured system-level attributes for the 6100 VDR.

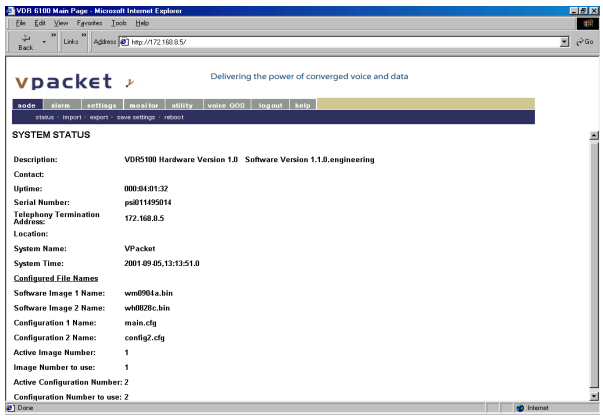

Figure 2-1. System Status window

The system parameters in this window include:

- **Description** lists the VDR type and hardware and software release numbers
- **Contact** lists a person to be contacted for support
- **Uptime** displays the cumulative time (dd:hh:mm:ss) since the VDR was last rebooted
- **Serial Number** lists the unit's serial number
- **Telephony Termination Address** lists the IP address for the terminating voice traffic device
- **Location** displays the geopolitical location of the unit
- **System Name** displays the assigned name for the unit and becomes the prompt name
- **System Time** shows the current time on the unit
- **Software Image 1 Name:** the name of the software code (.bin) file in location 1
- **Software Image 2 Name:** the name of the software code (.bin) file in location 2
- **Configuration 1 Name:** the name of the configuration file (.cfg) file in location 1
- **Configuration 2 Name:** the name of the configuration file (.cfg) file in location 2
- **Active Image Number:** the currently loaded image file as numbered (1 or 2)
- **Image Number to use:** specifies that the file in a particular slot will be used in the next reset
- **Active Configuration Number:** the current configuration file (1 or 2)
- **Image Configuration to use:** specifies that the file in a particular slot will be used in the next reset

Importing files

From the Import Files window you can instruct the 6100 VDR to download system files–where Image denotes software code and Configuration is a configuration file–from an external FTP Server.

The parameters in this window include:

- **File Type** lets you choose between configuration and image (software binary).
- **File Name** is where you specify the case (case-sensitive).
- **Slot** allows you three choices in directing the loading of the software image:
  - "use slot 1" or "use slot 2" directs the loader to seek the program in Slot 1 or Slot 2 (memory assignments on the local device)
  - "use slot not active" indicates that the loader is to place the image in the unused slot (for example, if slot 1 is active then the file imports to slot 2)
- **Request Active** is a checkbox that forces the 6100 VDR to load this file as the image code upon reboot.

The FTP Server Information must be accurately filled in and may appear already completed if you previously used the set ftp commands from the CLI.

Note. The file names you enter must be exact because the software is case-sensitive.

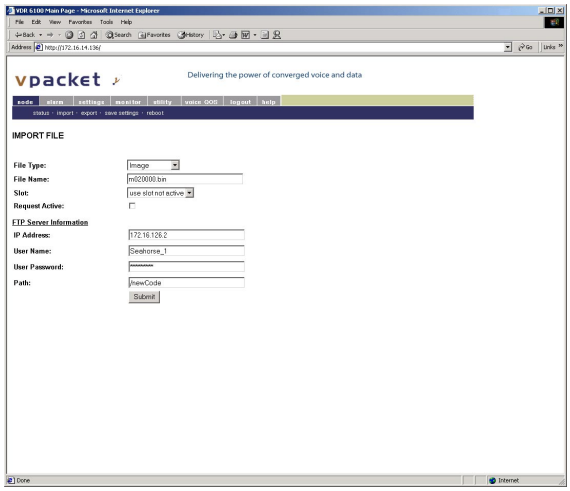

Figure 2-2. Import File window

To import a file

1. Enter the file name, select the correct file type, and select the slot in which it resides.
2. Verify the values in the FTP Server Information fields.
3. Click **Submit**.

Exporting files

From the Export Files window, you can instruct the unit to upload system files by name and type (bin for executable code and config for a configuration file) to an external FTP Server.

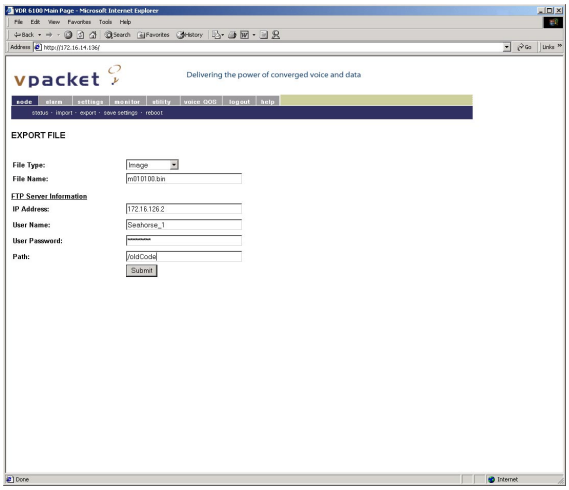

Figure 2-3. Export File window

To export a file

1. Input the file name and select the correct file type.
2. Verify the FTP server information.
3. Click **Submit**.

Saving recent changes

From the **Save Settings** window you can save recent changes to the VDR configuration file (MAIN.CFG) or create a backup configuration file. These files can be exported to an external FTP server for configuration backup.

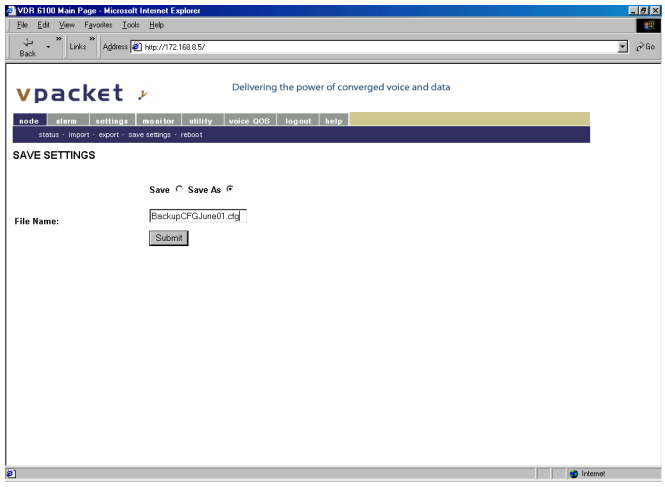

Figure 2-4. Save Settings window

To save changes to the configuration file

1. Select **Save Settings**.
2. Verify that the **Save** radio button is enabled and the name main.cfg is in the file name field.
3. Click **Submit**.

To create a backup configuration file

1. Select **Save Settings**.
2. Enable the **Save As** radio button and create a file name with the .cfg suffix in the file name field.
3. Click **Submit**.

Rebooting

When you select **Reboot**, three events occur:

- all voice traffic "terminates"

Note. You must confirm this action. See Figure 2-5.

- the VDR is forced to reboot
- all statistical counters are reset

Before rebooting, the 6100 VDR will ask you to confirm that you want to reboot the system (Figure 2-5).

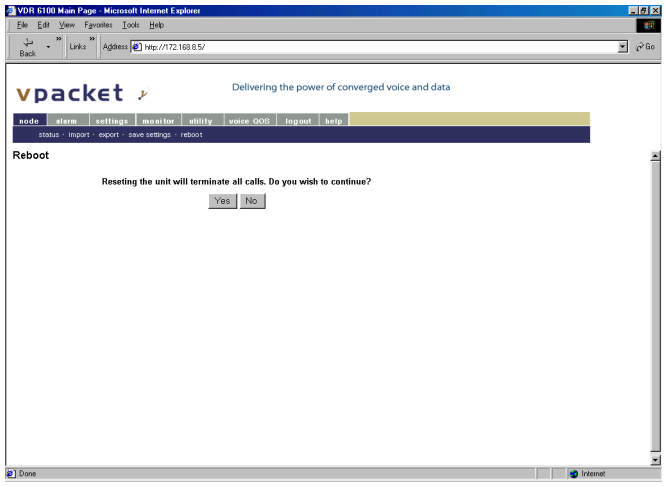

Figure 2-5. Reboot confirmation window

CHAPTER 2
Node options

Alarm options 3

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CHAPTER 3
Alarm options

Overview

The alarm menu is for managing system alarms.

The alarm options are:

- **display** lists the latest system events in the VDR
- **control** controls sending SNMP traps from the VDR to external destinations

Viewing alarms

This window allows you to view captured alarms. The alarms, as reflected in the tables, remain in the tables until the VDR is reset. Once reset, the original severity thresholds are displayed.

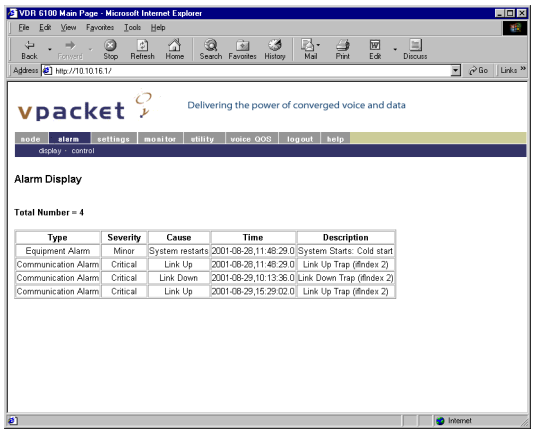

Figure 3-1. Alarm Display window

Alarms are described by:

- **Type**, which can include any of the following:
  - Informational
  - Communications
  - Environmental
  - Equipment

    - Processing error
    - Performance
    - Threshold-Crossing alarm
    - Security
    - Debug
- **Severity**, which can include any of the following:
    - Cleared
    - Warning
    - Minor
    - Major
    - Critical
- **Cause**, which can include any of the following:
    - Other
    - Security Alarm Causes
    - Invalid Access
- **Time**: Date (YYYY:MM:DD) and time (HH:MM:SS) in 24-hour format.
- **Description**, which can include any of the following:
    - Informational causes
    - Registration request
    - System restart warning
    - Core dump
    - Link up
    - Link down
    - EGP trap, which tracks the loss of an external gateway protocol (EGP) neighbor (peer)
    - Enterprise trap

Configuring alarms

You can configure the VDR to send SNMP traps to external destinations from this window. Figure 3-2 shows an empty SNMP Trap table.

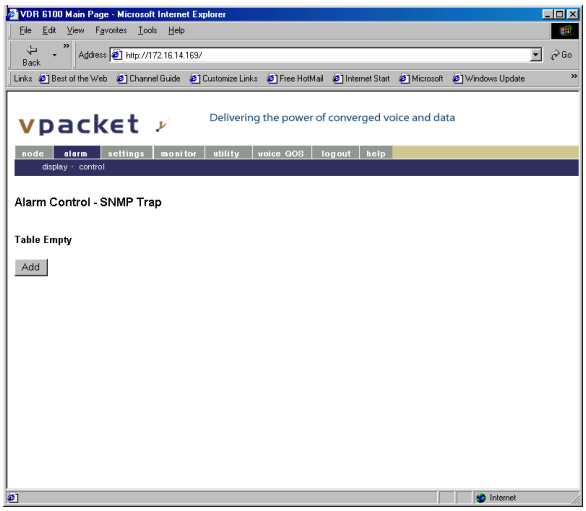

Figure 3-2. Alarm Control-SNMP Trap window

To create SNMP trap destinations

1. Click on **alarms**.
2. From the Alarm Control window, click **Add**.
3. When the Alarm Control- SNMP Trap Add window opens (see Figure 3-3 on 24), enter the following:
   - Destination IP address
   - UDP port (standard=162)
   - Community string (maximum= 40 ASCII characters)

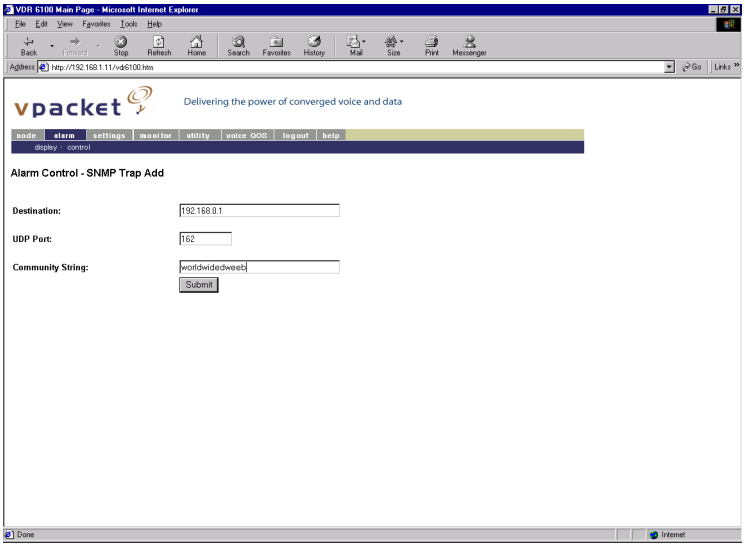

Figure 3-3. Alarm Control-SNMP Trap Add window

4. When you click **Submit**, the Alarm Control-SNMP Trap Add window reappears, now with the new SNMP trap destination listed in a table (see Figure 3-4).

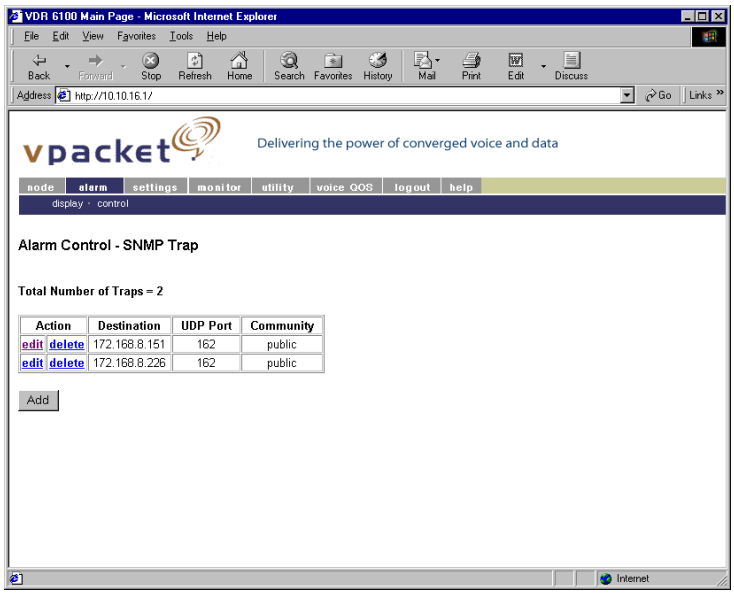

Figure 3-4. SNMP trap successfully created

To edit SNMP alarm controls

1. Select the **Edit** button belonging to the trap destination you want to edit from the right-hand column listed in the Alarm Control-SNMP Trap window (Figure 3-5).
2. When the Alarm Control-Edit Trap window opens, enter the new the UDP port number.
3. Click **Submit**.

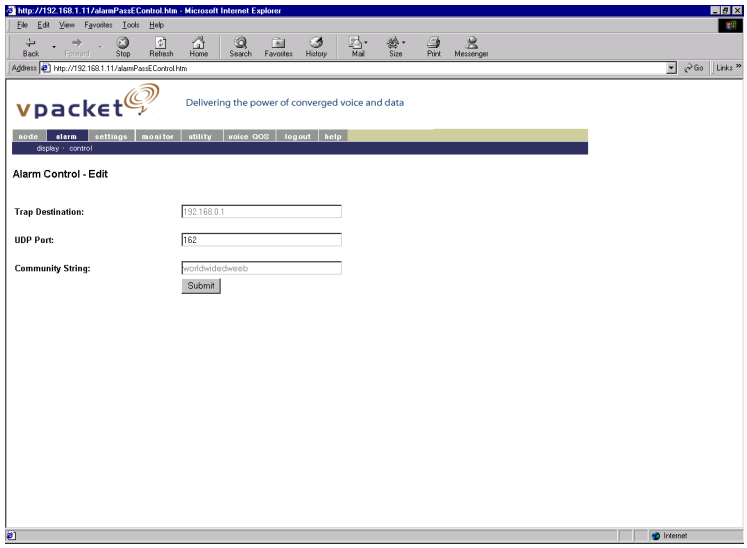

Figure 3-5. Alarm Control-Edit window

To delete SNMP alarm controls

1. Select the **Delete** button from the right-hand column of the trap destination you want to delete as it is listed in the Alarm Control-SNMP Trap window.
2. The software responds with a confirmation message (see Figure 3-6) and if you click **OK**, the row is permanently deleted.

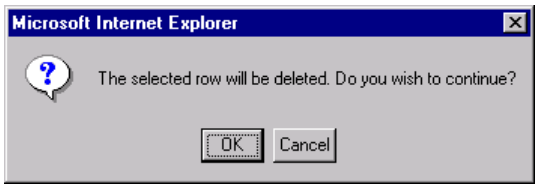

Figure 3-6. SNMP trap deletion confirmation window

CHAPTER 3
Alarm options

Settings options 4

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Configuring routing information, page 58
Enabling routing information protocol, page 60

CHAPTER 4
Settings options

Overview

The settings menu allows you to display and set the VDR configuration.

The settings options are:

- **wan** manages the WAN interface
- **lan** manages the LAN interface
- **system** configures the descriptive information displayed in the System Status window
- **voice** manages the voice services
- **dhcp** configures the VDR as a DHCP client or server
- **nat** enables or disables the Network Address Translation function and manages port mapping
- **ntp** enables the use of the Network Timing Protocol and the configuration of its parameters
- **route** displays the IP Routing Table and provides a means for managing static IP route entries in the IP Routing table
- **rip** enables or disables the RIP routing feature

The Settings menu provides tools for configuring the VDR including the following:

- "Configure and view WAN settings" on page 30
- "Configuring and viewing LAN settings" on page 32
- "Entering and viewing system settings" on page 33
- "Setting voice services" on page 34
- "Configuring dynamic host control protocol (DHCP) settings" on page 44
- "Enabling and disabling network address translation" on page 52
- "Enabling routing information protocol" on page 60

Configuring and viewing WAN settings

This window displays the WAN interface configuration parameters that correspond to the WAN interface module within the 6100 VDR.

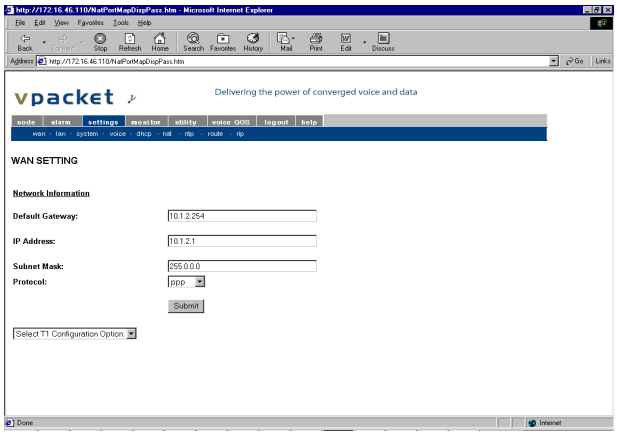


Figure 4-1. WAN Setting window

To specify the values of a T1 WAN interface

1. Click settings.
2. Enter the appropriate values–defaults are listed first–for your configuration:
   - **Default gateway**
   - **IP address**
   - **Subnet mask**
   - **Data Protocol** (PPP or MLPPP)

3. Click **Submit** to accept changes or click **wan** to return to the WAN Settings window.

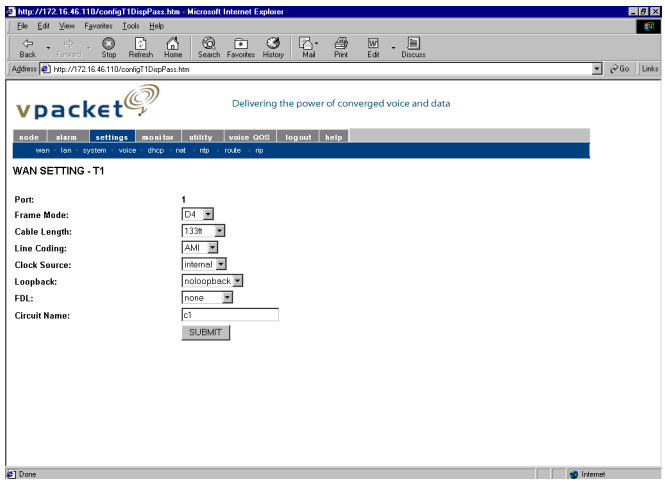


Figure 4-2. WAN Setting-T1 window

To view the WAN setting information table

Select "T1 configuration" from the **Select T1 configuration** pull-down menu (Figure 4-3).

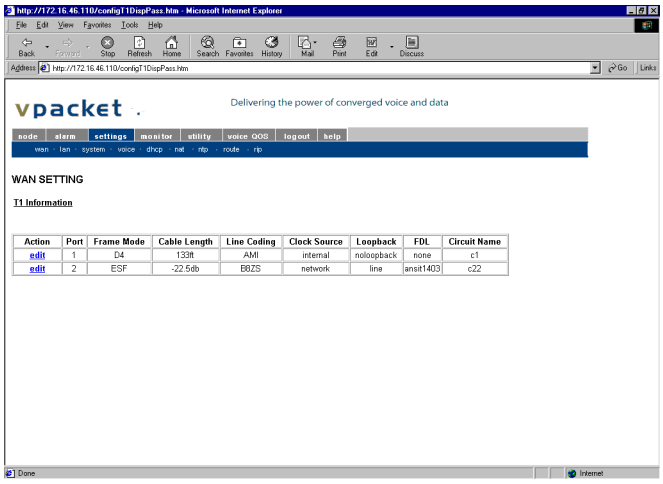


Figure 4-3. WAN Setting T1 configuration window

Configuring and viewing LAN settings

The LAN Settings window allows you to specify the IP address and subnet mask for the LAN interface(Figure 4-4).

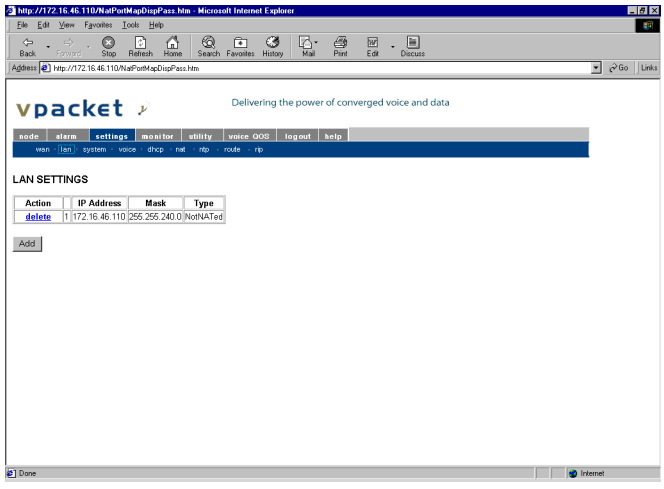


Figure 4-4. LAN Settings window

To delete a LAN configuration

Click on **delete** to delete the LAN configuration.

To configure the LAN

1. From the LAN Settings window, click **Add**.
2. Enter the IP address, subnet mask, and whether the interface is NATed or NotNATed.
3. Click **Submit** to accept the changes or **Return to LAN settings** to disregard these changes.

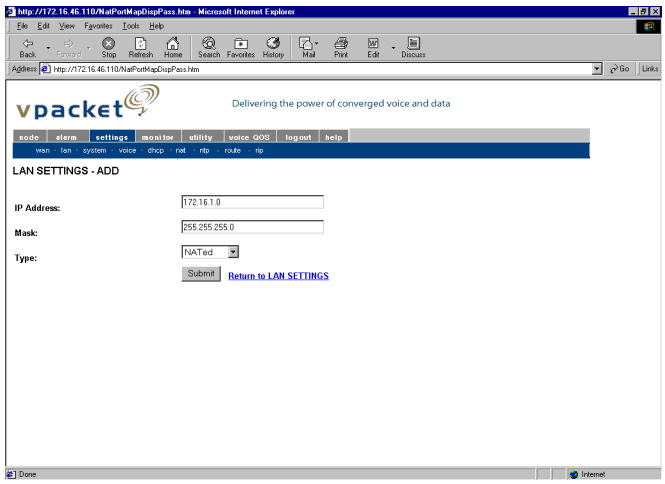


Figure 4-5. LAN Settings window

Entering and viewing system settings

The System Settings window allows the administrator to specify system identification parameters for the 6100 VDR.

This information is a combination of user and unit information. The User, or contact person referred to in the System Status window under the Node menu, is the person responsible for the unit; the Unit Information also appears on the System Status Window.

The System Name that you enter becomes the prompt for the Command Line Interface (CLI).

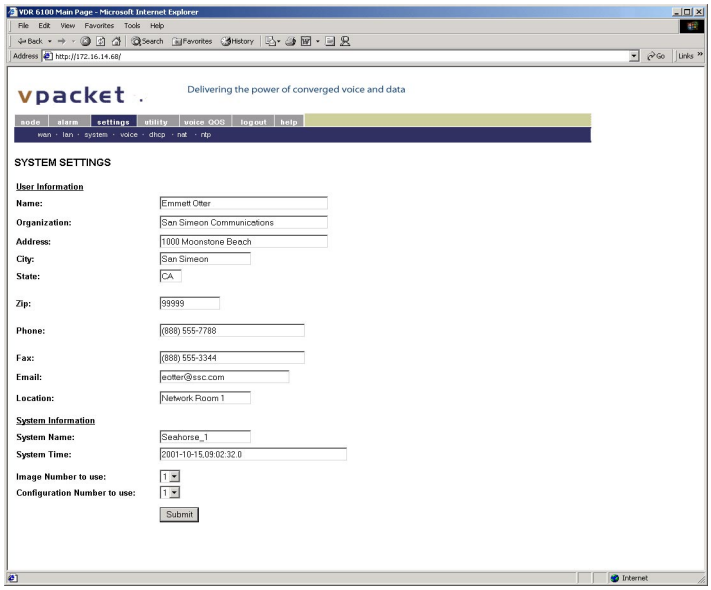


Figure 4-6. System Settings window

To specify the system information for a VDR

1. Click **settings** and then **system**. The System Settings window appears (Figure 4-6).
2. Enter the appropriate information.
3. Click **Submit**.

Setting voice services

You can configure parameters for voice services from the Voice Settings window.

First, you need to identify the Telephony Termination Address (the IP address for the port on the 6100 VDR, which routes the voice traffic).

Next, you need to set the parameters appropriate to an H.323 or MGCP environment from the dropdown menu.

The second step is prefigured based on whether you are in a H.323 or an MGCP environment. In an H.323 environment, you can perform the following tasks:

- “Viewing and editing telephony channel identifiers” on page 36
- “Editing a TCID” on page 37
- “Viewing, editing, or deleting a codec” on page 38

In an MGCP environment, you can perform these MGCP-specific actions:

- "Adding, editing, or deleting a media gateway controller" on page 40
- "Editing the MGCP end point" on page 42
- "Viewing and editing the media gateway control protocol parameters" on page 43

Figure 4-7 shows the whole window and Figure 4-8 shows the "Select Telephony Configuration:" dropdown menu.

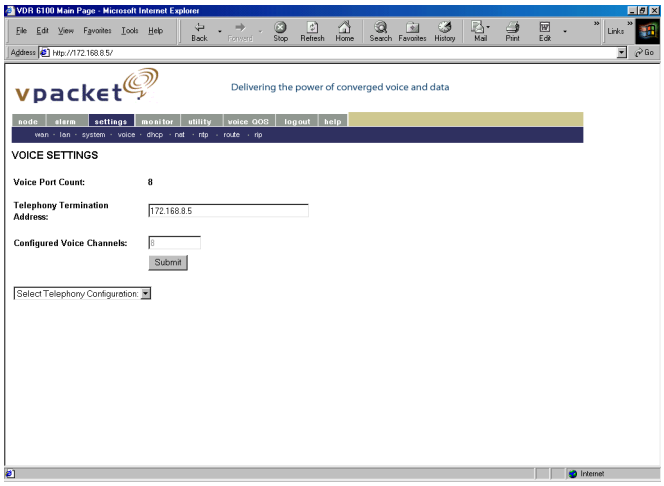


Figure 4-7. Voice Settings window (MGCP choices shown)

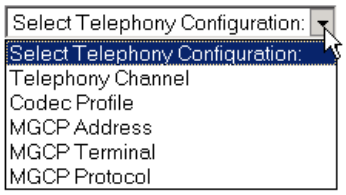


Figure 4-8. Select Telephony Configuration dropdown menu

Viewing and editing telephony channel identifiers

You can view and modify the parameters of the telephony channels (identified by integers called Telephony Channel Identifiers or TCIDs) from the Telephony Channels window. To view TCIDs, click **settings** and then **voice**.

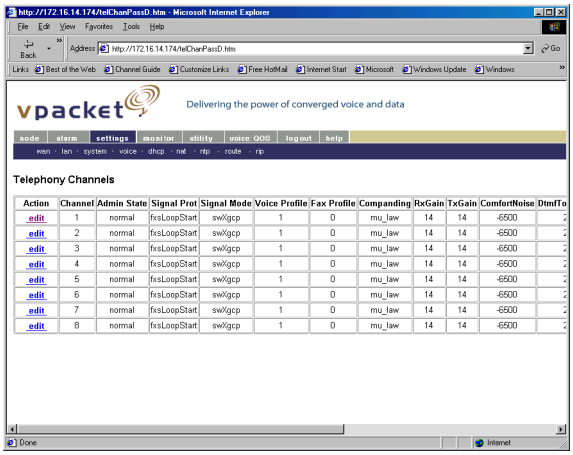


Figure 4-9. Telephony Channels window

Each of the telephony channels can be defined using these parameters:

- **Channel** Unique number assigned as the TCID value.
- **Admin State** Condition of the telephony channel. Can be Normal or Down.
- **Signal Protocol** The type of protocol standard used for the connection. Can be fxsLoopStart or fxsGroundStart.
- **Signal Mode** The telecommunications environment for this link: MGCP or H323.
- **Voice Prof Index** The default voice coding profile.
- **Companding** One of three types of non-linear encoding techniques for minimizing data rate requirements while preserving signal quality
- **RX and TX Gain** Sets the gain for reception and transmission. Range of 14 to -14 db with +14 as the default.
- **ComfortNoise** A calming background noise provided by the receiving side during a conversation to "fill-in" the blank spots during pauses in conversations.
- **DtmfToneOutOn** and **DtmfToneOutOff** Enables/disables the DTMF digit-signal out-going tone.
- **DialOutType** Sets the dialing-type for this session. Can be tone or pulse.
- **MaxAnsWait** Specifies the number of seconds the system will wait for the caller to input the first digit of the dialed digits. Range: 0–120.

- **MaxCallDuration** Specifies the allowable length of the call. Range: 65535–infinity.
- **Tone Generation** Specifies the tone type according to national standards. Choices are: us (United States), japan (Japan), and uk (United Kingdom).

Editing a TCID

You can edit a TCID by following these steps.

To edit a TCID

1. Click **settings** and then **voice**.
2. Select **Telephony Channel** from the "Select Telephony Configuration:" dropdown menu. The Telephony Channels window should appear.
3. Click **edit** beside the listing you want to modify. The Telephony Channels-Edit window appears (Figure 4-10).
4. Enter the new information or select an item(s) from the dropdown menus.
5. Click **submit** to accept changes or **Return to Channel Configuration** link to disregard the changes and return to the Telephony Channels window.

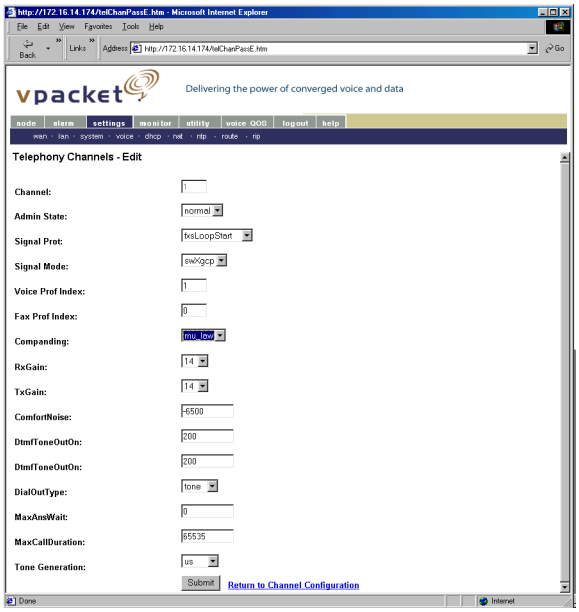


Figure 4-10. Telephony Channels-Edit window

Viewing, editing, or deleting a codec

You can view, edit, or delete one of the available codecs supplied with the 6100 VDR from the Codec Profile window.

To view a codec

1. Click **settings** and then **voice**.
2. Select **Codec Profile** from the "Select Telephony Configuration:" dropdown menu (Figure 4-11).

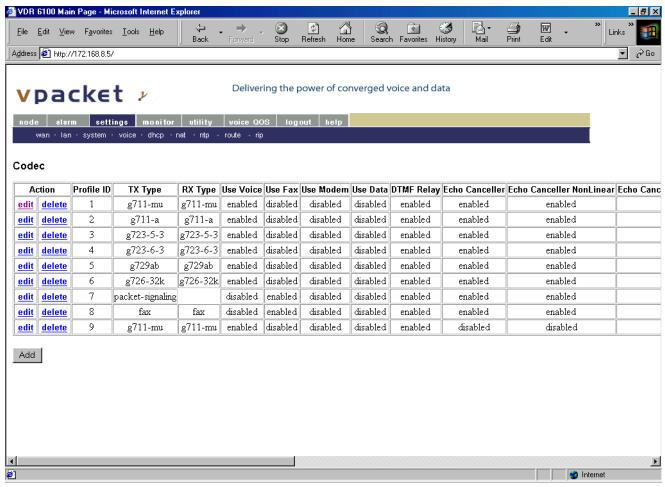


Figure 4-11. Codec Profile window

Codec profiles contain these parameters:

- **Profile ID:** A unique number that identifies this profile
- **TX Type and RX Type:** The compression-to-payload codec values for the reception and transmission of data. Available choices: packet-signaling, G711-mu, G711-a, G723 53kbps, G723 63kbps, G726 24kbps, G726 32kbps, G726 40kbps, G729b, G729ab, Fax, and clear-channel signaling
- **Use Voice, Use Fax, Use Modem (not supported), Use Data (not supported)**: mutually exclusive radio buttons for selecting services using this codec profile
- **DTMF Relay Enables/disables the DTMF Relay mode:** If enabled, DTMF tones are detected during voice processing and separately packetized for transmission. This is only available with FRF.11 or RTP encapsulation.
- **Echo Canceller and Echo Canceller Non Linear Enables:** disables the echo cancelling services

- **Echo Canceller Tail Length Enables:** disables the echo cancelling services (the maximum delay in milliseconds between the issuing of a master signal and receiving the resulting echo)
- **Voice Activity Detector Enables:** disables the Voice Activity Detector (VAD) which monitors the passage of voice traffic onto the network
- **Voice Activity Detector Threshold Range:** 0–10 with an Adaptive option
- **Silence Detect Time:** Sets the duration for declaring silence detection (using VAD) for a coding profile. Range: 0-2400 milliseconds; 0 means disabled
- **Silence Detect Level Range:** Negative 40–Negative 50 (-40, -41...-50).
- **TX Voice Info Field:** Transmit Voice Information Field (in bits) with available choices: 80, 160, 192, 240, 320, 384, 400, 480, 560, 640, 720, 800, 960, 1200, 1280, 1600, 1920.
- **RX Voice Info Field:** Transmit Voice Information Field (in bits) with a range of 80, 160, 192, 240, 320, 384, 400, 480, 560, 640, 720, 800, 960, 1200, 1280, 1600, 1920
- **Nominal Delay:** Negative 40–Negative 50 (-40, -41...-50)
- **Maximum Delay:** Negative 40–Negative 50 (-40, -41...-50)
- **Adaptive Playout** Enables or disables the use of Nominal and Maximum delay values for managing the amount of jitter in the traffic received from and transmitted to the network
- **Row Status** Codec status choices: Active, NotInService, NotReady, CreateAndWait, CreateAndGo, Destroy

To edit an H.323 codec

1. Click **settings** and then **voice**.
2. Select **Codec Profile** from the "Select Telephony Configuration:" dropdown menu.
3. Click **edit** in the far-left column beside the listing you want to modify. The Codec Profile-Edit window appears (Figure 4-12).
4. Change the information in the codec profile as appropriate.

5. Click **submit** to accept the changes or **Return to Codec Table** link to disregard the changes and return to the previous window.

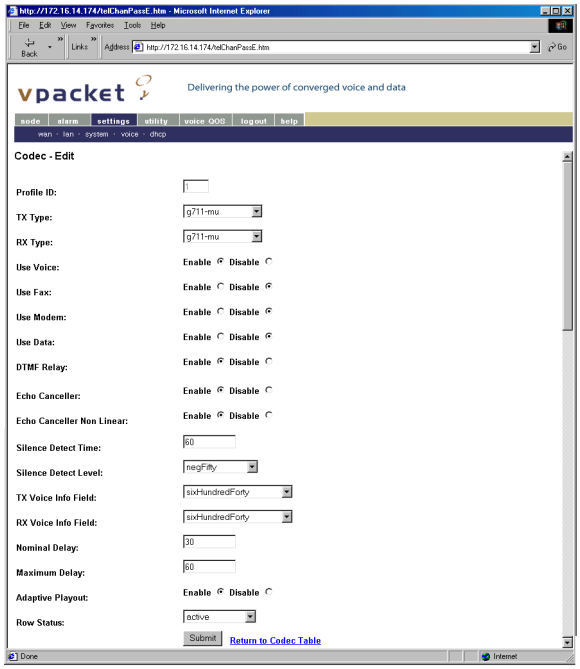


Figure 4-12. Codec-Edit window

To delete a codec

1. Click **settings** and then **voice**.
2. Select **Codec Profile** from the "Select Telephony Configuration:" dropdown menu.
3. Click **delete** in the far-left column beside the listing you want to delete.
4. Click **submit** to accept the delete action or **Return to Codec Table** link to disregard the changes.

Adding, editing, or deleting a media gateway controller

You can define the media gateway control (MGC) server by setting these parameters:

- **Index** A unique, sequentially numbered value. Range: 1–8.
- **MGC Address** The IP address for the Media Gateway Controller or softswitch.
- **UDP Port** 2427 is the well-known port for MGCP.

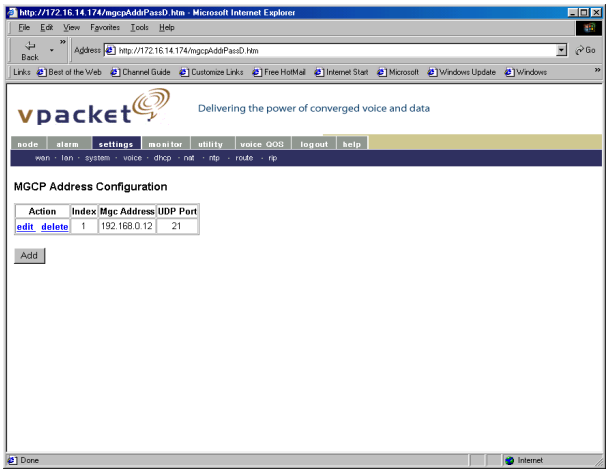


Figure 4-13. MGCP Address Configuration window

To edit media gateway controller information

1. Click **settings** and then **voice**.
2. Select **MGCP Address Configuration** from the "Select Telephony Configuration:" dropdown menu in the Voice Settings window.
3. Click **edit**. The MGCP Address Configuration-Add window appears (Figure 4-13).

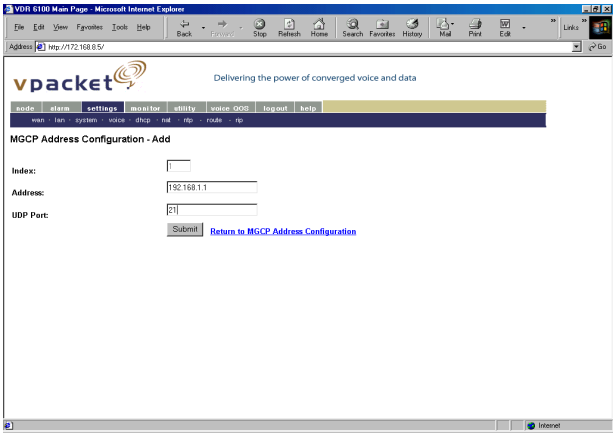


Figure 4-14. MGCP Address Configuration-Add window

4. Make changes as appropriate.
5. Click **submit** to accept the changes or Return to MGCP Address Configuration link to disregard the changes.

Editing the MGCP end point

From this window you can set and view the current settings for the MGCP end points. Each telephony channel on the system is an MGCP end point. The configurable MGCP end point parameters include:

- **Index number** A unique, sequentially numbered identifier for this terminal
- **Terminal Name** A human-readable name.
- **Digit Map** Using the North American Dialing Plan, this field lets you set a up a digital mapping configuration similar to the use of the CLI command set tcid [tcid] default_digit_map <digit_map_string> where [0-9]xxx: the bracketed numbers supply a set of valid numbers–separated by commas–which precede the local dialing number.; 91x.T: these parameters allow for a PBX dial-out both locally and across area codes (the x and the 1, respectively); the ".T" signifies a duration in seconds during which the digits must be dialed or a fast busy signal occurs; and 9011x.T: these parameters allow for a PBX dial-out for international calls.
- **Mode Operational** mode of the terminal. Can be dynamic or static.
- **MGC Index Sequential** numbered value for this session.

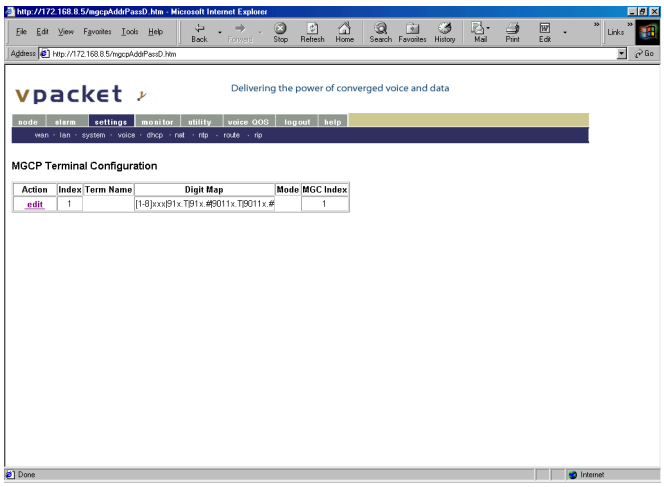


Figure 4-15. MGCP Terminal Configuration window

To edit the MGCP end points

1. Click **settings** and then **voice**.
2. Select **MGCP Terminal** from the "Select Telephony Configuration:" dropdown menu on the Voice Settings window.
3. Click **edit** next to the entry that you want to change. The MGCP Terminal Configuration-Edit window appears (Figure 4-16).
4. Enter changes as necessary.
5. Click **submit** to accept the changes or Return to Channel Configuration to ignore the changes and return to the previous window.

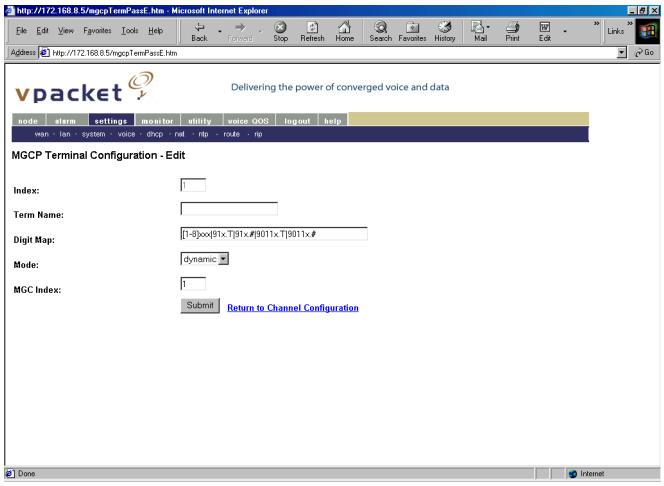


Figure 4-16. MGCP Terminal Configuration-Edit window

Viewing and editing the media gateway control protocol parameters

You can view and edit the current settings for the media gateway control protocol (MGCP) system-level parameters. To get to the control window you have to click settings and then MGCP protocol from the Telephony Configuration dropdown menu. You can set these parameters:

- **Restart Wait** Time in milliseconds the protocol pauses before resetting and retrying its previous actions.
- **Re-Transmit Limit** Time that an MGCP client waits before it notifies the VDR/Call Agent that it has restarted.
- **Nominal Wait** The average re-transmission time value in milliseconds.
- **History Size** The number (in seconds) that responses to old transactions must be kept in the history list.

- **Maximum Delay Time** Sets the maximum time delay before attempting to reconnect following a disconnect from the call agent. The default maximum time-out delay is 600 seconds.
- **Minimum Delay Time** Sets the minimum time delay before attempting to reconnect following a disconnect from the call agent. The default minimum time delay is 15 seconds.

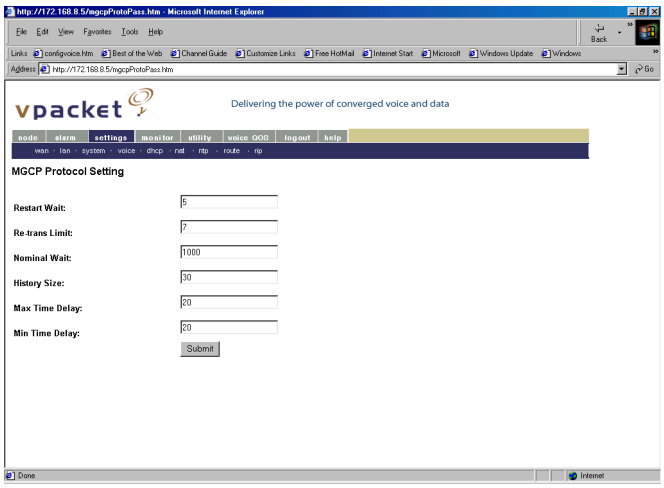


Figure 4-17. MGCP Protocol Setting window

Configuring dynamic host control protocol (DHCP) settings

Use the DHCP Settings window to define the DHCP settings. These three dropdown menus control major configuration options:

- **Mode** (default window)
- **Select DHCP Configuration**
- **Select DHCP Status**

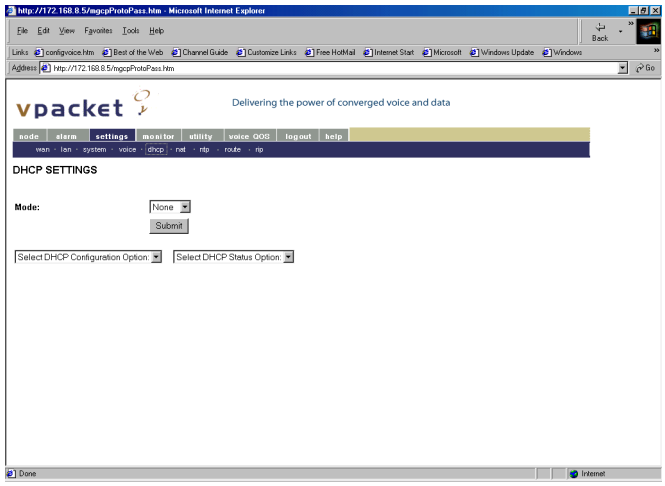


Figure 4-18. DHCP Settings window

Mode menu

The Mode menu allows you to set the DHCP Server Status to Server or None (client). Whenever you select, you must click Submit to make your change effective.

DHCP Configuration Options menu

From this menu, you can view and set DHCP parameters for using either pool and static host functionality.

DHCP pools

Setting up a pool provides dynamic allocation of IP addresses from a specified address range. The static host configuration provides manual allocation of IP addresses for a specific host.

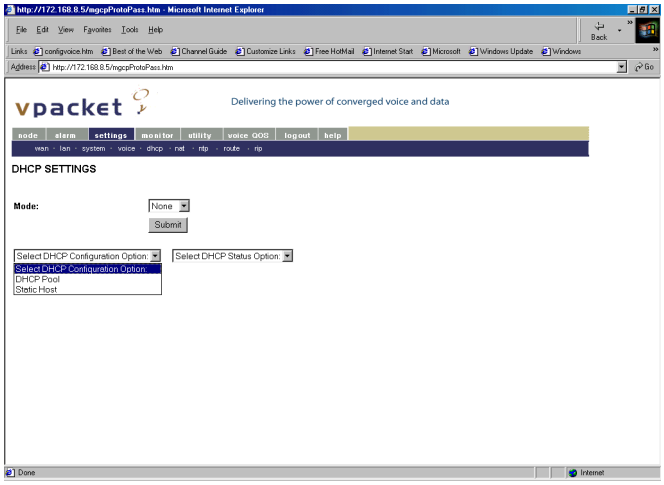


Figure 4-19. DHCP Settings window

Here you can view the following parameters:

- **Index** A Unique sequential number for each defined pool of addresses
- **Pool Name** An ASCII name of up to 127 characters
- **Domain Name** An ASCII name of up to 127 characters
- **Network Address** The IP Address of the network to which the DHCP client (the VDR) is connected (if there are no other routers in the same subnet, this IP address is the IP address of the 6100 VDR)
- **Mask** The subnet mask for the network address
- **Netbios Server** The IP address of a server running the NetBIOS application
- **Netbios Node Type** NetBIOS clients running over TCP/IP can be configured:
  - B nodes broadcast on the local network for NetBIOS resolution and advertising.
  - P nodes unicast to a configured WINS server for NetBIOS resolution and advertising.
  - H-(Hybrids) can be P-type nodes as long as that functions; they revert to B-type nodes when WINS doesn't give them the info they want.
  - M-are mixed modes.
- **Default Router** A machine serving as the default router (gateway)
- **IP Range (Min)** mandatory value, which sets the minimum (lowest) IP address

- **IP Range (Max)** mandatory value, which sets the maximum (highest) IP address
- **Default Lease (Days)** Sets a Default Lease (time-out value) in 0–365 days
- **Default Lease (Hours)** Sets a Default Lease (time-out value) in 0–23 for hours
- **Default Lease (Mins)** Sets a Default Lease (time-out value) 0–59 for minutes
- Checkbox for selecting No Time Limit for Default Lease
- **Max Lease (Days)** Sets a Default Lease (time-out value) in 0–365 days
- **Max Lease (Hours)** Sets a Default Lease (time-out value) in 0–23 for hours
- **Max Lease (Mins)** Sets a Default Lease (time-out value) 0–59 for minutes
- Radio button for selecting No Time Limit for Maximum Lease
- DNS Servers 1 to 8 Sets the IP addresses of up to eight machines as DNS servers

To create a DHCP pool

1. Click **settings** and then **dhcp**.
2. Select **DHCP pool** from the DHCP settings menu (Figure 4-20).

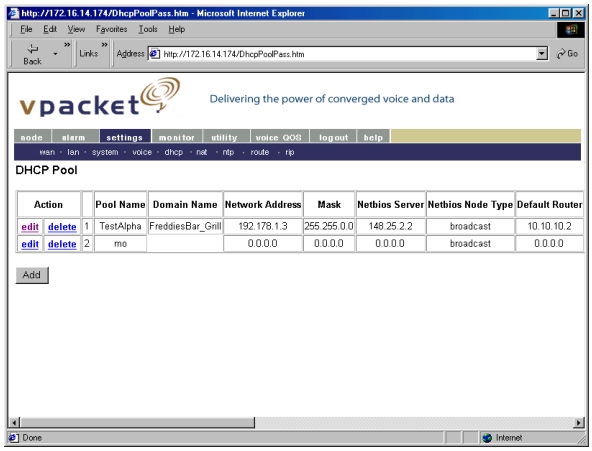


Figure 4-20. DHCP Pool window

3. Click **Add**. The DHCP-Add window appears (Figure 4-21).

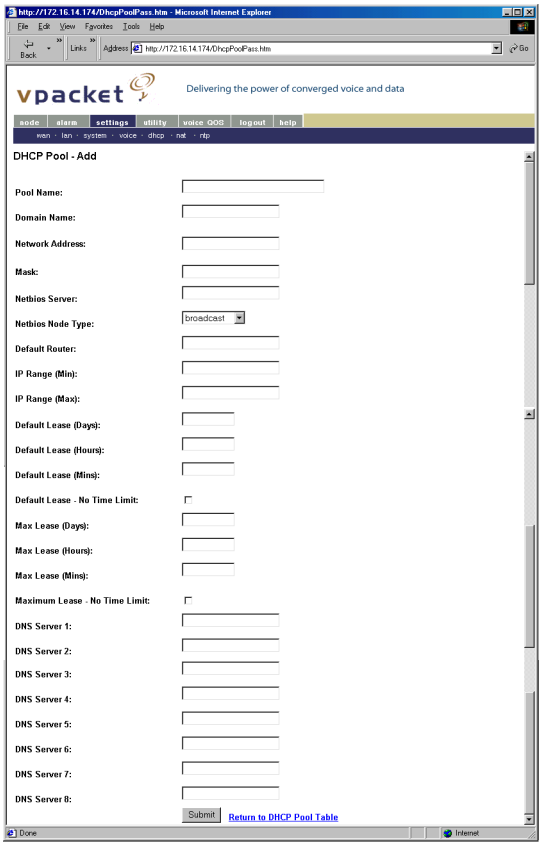


Figure 4-21. DHCP Pool-Add window

4. Fill in the appropriate fields.
5. Click **Submit** to add the new DHCP pool or click **Return to DHCP Pool Table** to disregard changes.

DHCP Static Hosts

When you select the DHCP Static Host option, you can view these parameters:

- **Index** A unique identifying number.
- **Host Name** An ASCII name of up to 127 characters.
- **Hardware Address** A MAC address of the host.
- **Domain Name** An ASCII name of up to 127 characters.
- **IP Address** The network (IP) address for the host.

- **Mask** The subnet mask for the network address.
- **Configuration File** The name of an ASCII text file containing the current configuration.
- **Server** The IP address of the specific network host which can be assigned.
- **DNS Servers** 1 to 8 Sets the IP addresses of up to eight machines as DNS servers.

You can follow these steps to add a DHCP static host.

To add a DHCP static host

6. Click **settings** and then **dhcp**.
7. Select **DHCP Static Host** from the DHCP Settings menu (Figure 4-22).

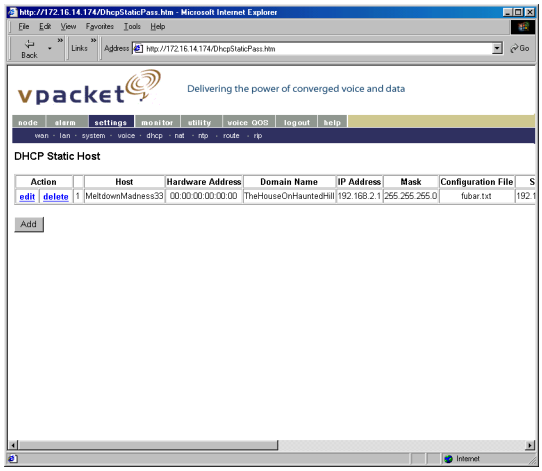


Figure 4-22. DHCP Static Host window

8. Click **add**. The DHCP Static Host-Add window appears (Figure 4-23).
9. Enter the appropriate information in the fields.

10. Click **Submit** to accept the new information or click **Return to DHCP Pool Table** to disregard changes and return to the previous window.

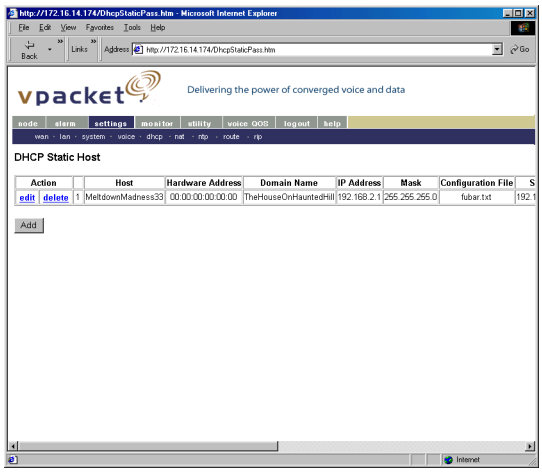


Figure 4-23. DHCP Static Host-Add window

DHCP Status Options menu

This selection allows you to view lease information and server status.

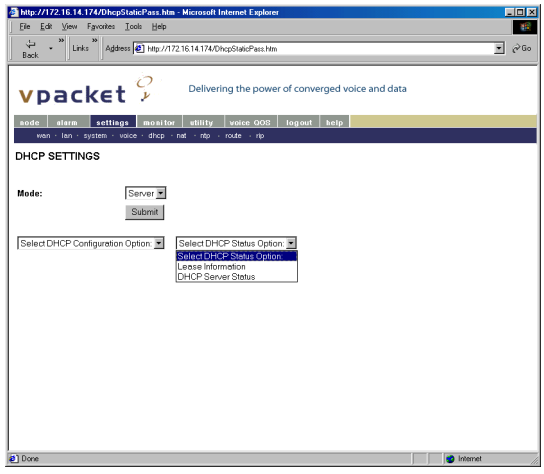


Figure 4-24. DHCP Status Options menu

DHCP Lease Information Option

This is a read-only screen which displays all existing IP address leases as provided by the DHCP server.

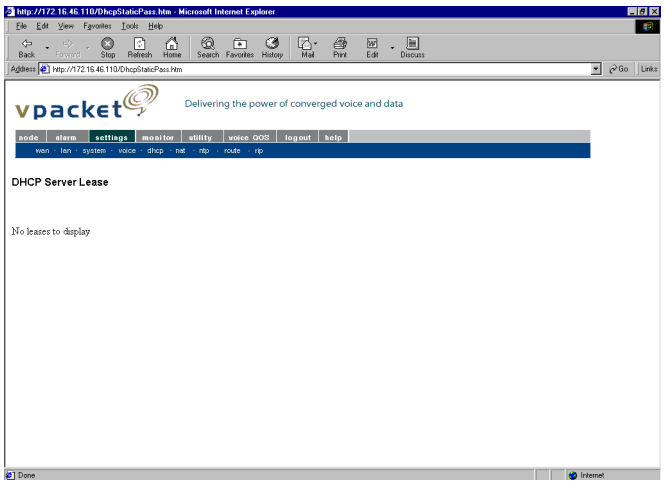


Figure 4-25. DHCP Server Lease option window

DHCP Server Information Option

This is a read-only screen which describes a simple text description of the DHCP server status.

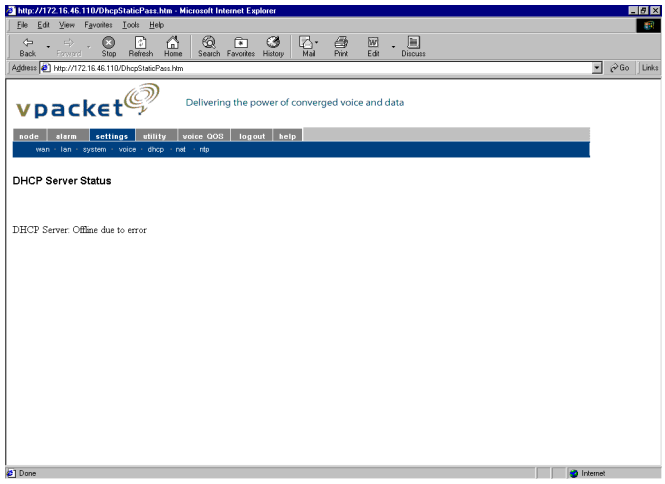


Figure 4-26. DHCP Server Status option window

Enabling and disabling network address translation

The network address translation (NAT) protocol is enabled during the initialization process if a valid WAN IP address is set. Otherwise NAT is disabled.

NAT allows the WAN IP address to accept an appended port number on outgoing packets.

This window allows you to enable or disable the NAT settings.

To enable or disable NAT

1. Click **settings** and then **nat**.
2. Select the **Enable** or **Disable** radio button.
3. Select the interface that NAT will be enabled on (either WAN or loopback).
4. Click **Submit**.

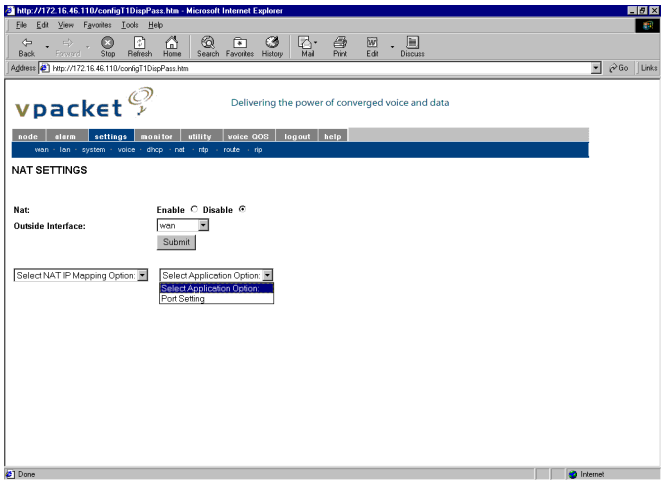


Figure 4-27. NAT Settings window

To view a port map

1. Click **settings** and then **nat**.
2. From the **Select NAT IP Mapping Option** pull-down menu, select **IP Port Mapping**.

NAT IP Port Mapping entries appear in a table. From this table you can add or delete an entry.

To add a NAT IP port map

1. From the NAT Settings window, click the **add** button.

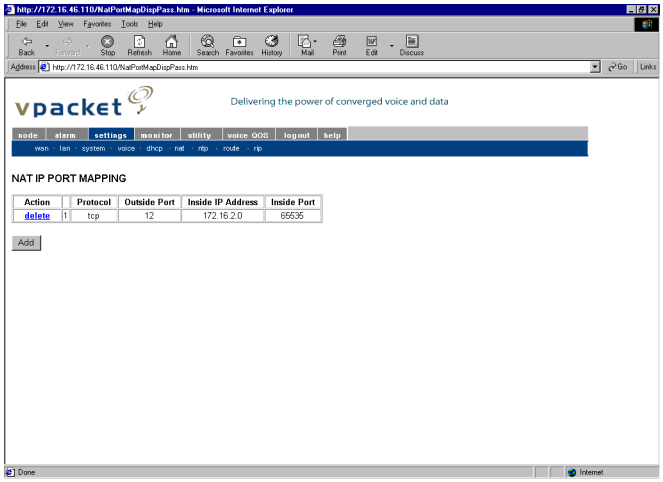
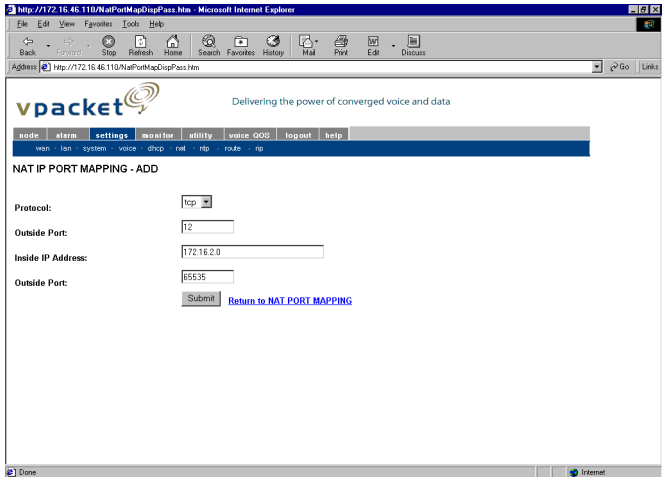


Figure 4-28. NAT IP Port Mapping window

2. From the NAT IP Port Mapping window, select the protocol to be used. Choice are TCP or UDP.



3. Enter the outside port number.
4. Enter the inside IP address.
5. Enter the outside port number. Port number 65535 is the largest valid port number.

6. Click **Submit** or the **Return to NAT Port Mapping** link to return to disregard changes and return to the previous window.

To add a NAT static IP mapping

1. Click **settings** and then **nat**.

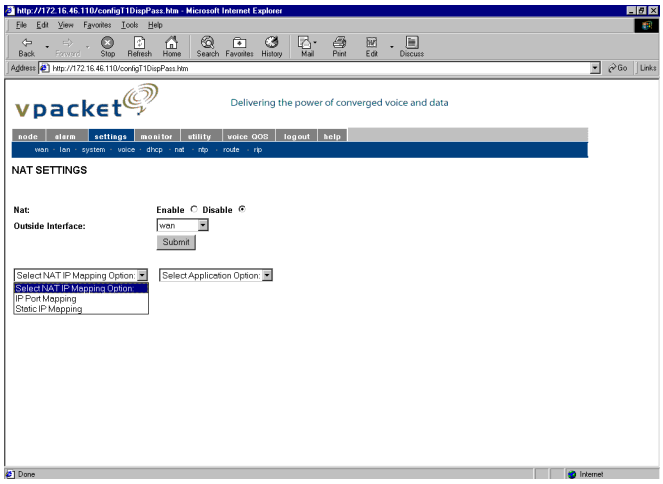


Figure 4-29. NAT Settings window

2. From the NAT Settings window, select the Static IP Mapping option from the left-hand side pull-down menu. The NAT Static IP Mapping window appears (Figure 4-31).

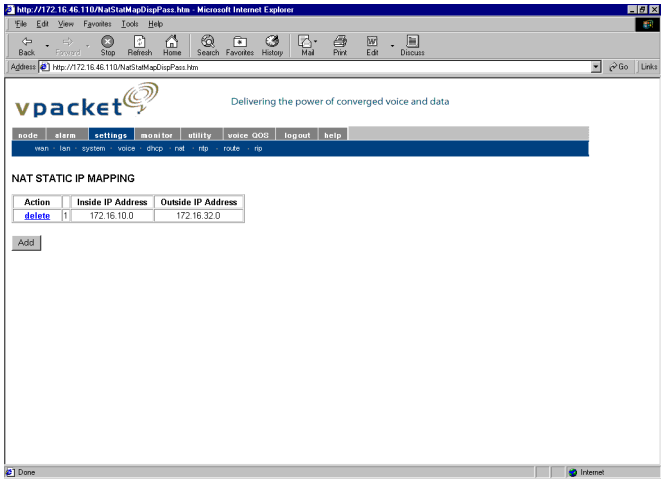


Figure 4-30. NAT Static IP Mapping window

3. Click **Add** (Figure 4-31).

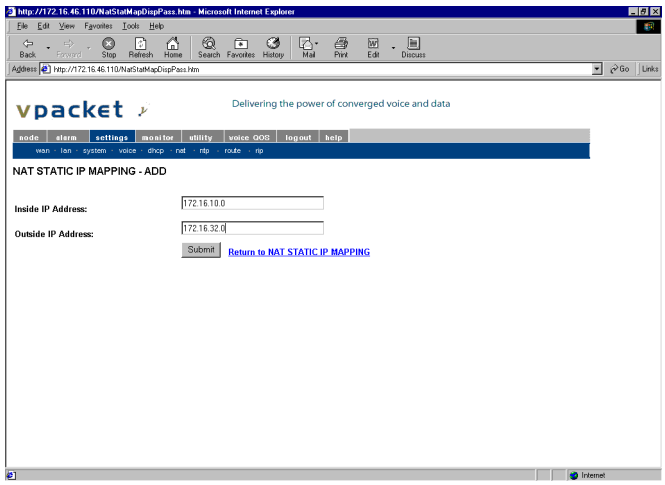


Figure 4-31. NAT Static IP Mapping-Add window

4. Enter the inside and outside IP addresses.
5. Click **Submit** to accept changes or the **Return to NAT Static IP Mapping** link to disregard the addition and return to the previous window.

To set an application port

1. Click **settings** and then **nat** (Figure 4-32).

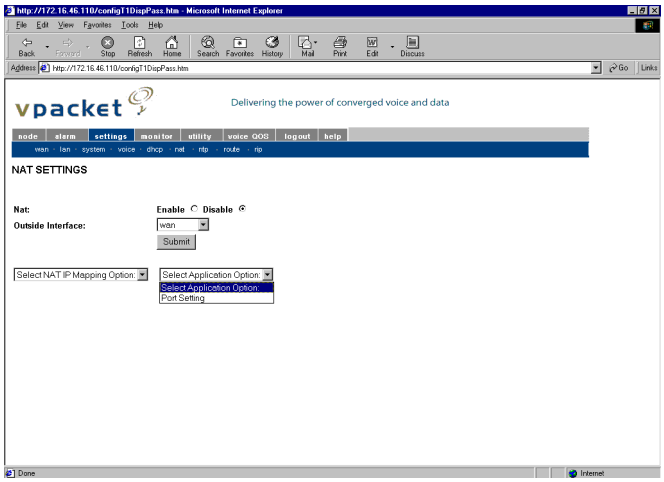


Figure 4-32. NAT Settings window

2. From the NAT Settings window, select the application option **Port Setting** from the pull-down menu on the right lower corner of the window.

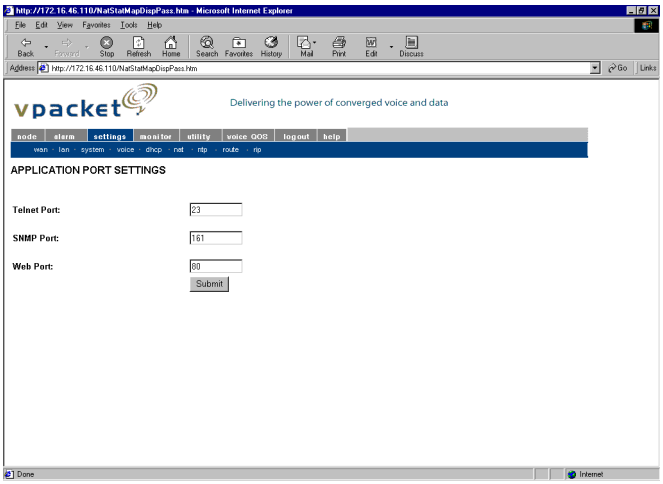


Figure 4-33. Application Port Settings window

3. Enter the desired port numbers. Well-known ports appear in the individual application fields.
4. Click **Submit** to accept changes or click **nat** to disregard changes and return to the NAT Settings window.

Defining network timing protocol settings

You can choose which machine to utilize for time keeping from the Network Timing Protocol Settings window. The configurable Network Timing Protocol (NTP) parameters include:

- **NTP Server IP address** Identifies the machine running the NTP software.
- **Timezone** Sets the time zone value in a range from +12 to -12. The default is 0.

- **Interval for resynchronization** Sets an interval in hours for validation of the time within a range of 1–255 hours with a default of 24 (Figure 4-34).

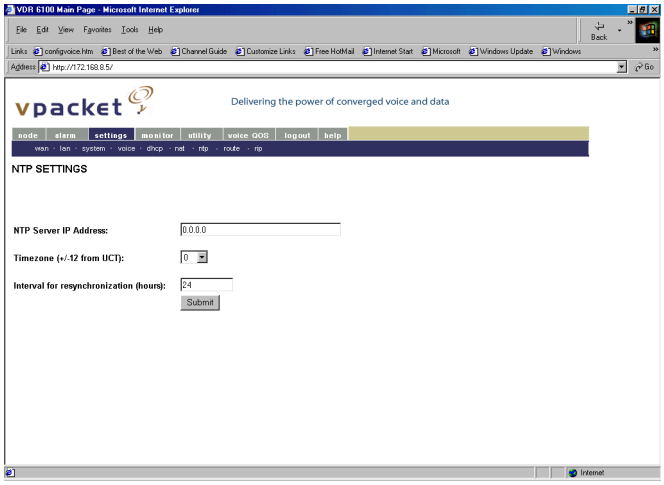


Figure 4-34. NTP Settings window

To define network time keeping

1. Click **settings** and then **ntp**.
2. Enter the NTP Server IP address, the time zone and the resynchronization interval.
3. Click **Submit**.

Configuring routing information

This window shows the RIP information for the VDR. The VDR supports RIP Version 1.0 in a silent listener mode, which allows the VDR to build a routing table that can be updated and age-out routing variables supplied to it.

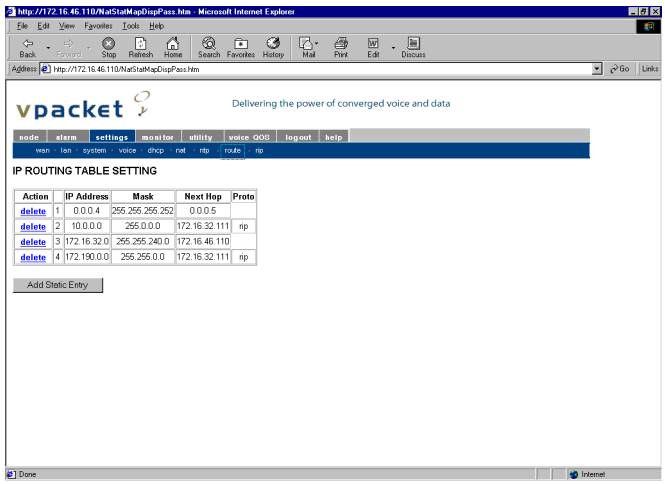


Figure 4-35. IP Routing Table Setting window

The listed IP parameters include:

- **IP Address** identifies the machine running the NTP software
- **Mask** displays the subnet mask for the LAN segment
- Next Hop
- Proto (Protocol) identifies whether RIP is enabled on the entry
- Next Hop

To add a static IP route

1. Click **settings** and then **route**. The IP Routing Table Setting window appears (Figure 4-36).

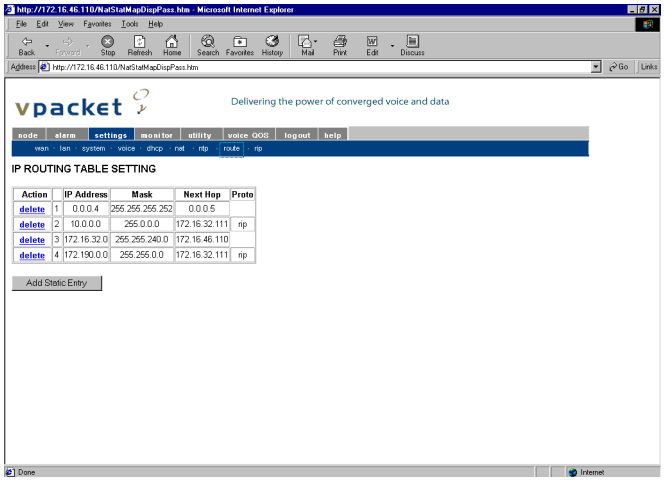


Figure 4-36. IP Routing Table Setting window

2. Click the button **Add Static Entry**. The Static IP Route-Add window appears.

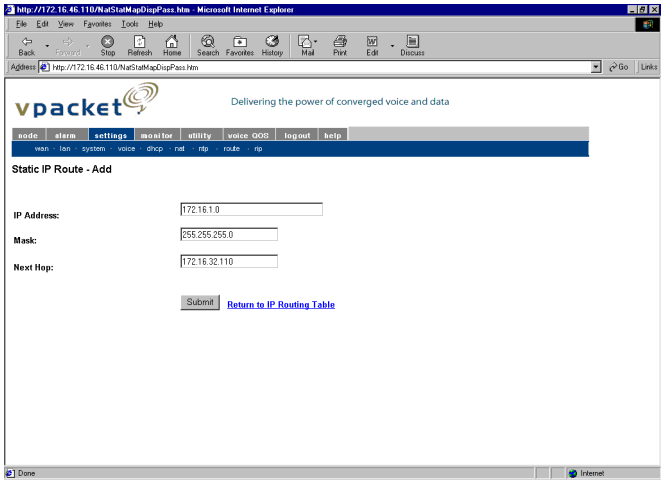


Figure 4-37. Static IP Route-Add window

3. Add the following information in the form fields:
   - **IP address**
   - **Mask**
   - **Next hop**
4. Click **Submit** to accept the changes or click **Return to IP Routing Table** link to disregard the changes and return to the previous window.

Enabling routing information protocol

You can enable or disable the RIP function from this window.

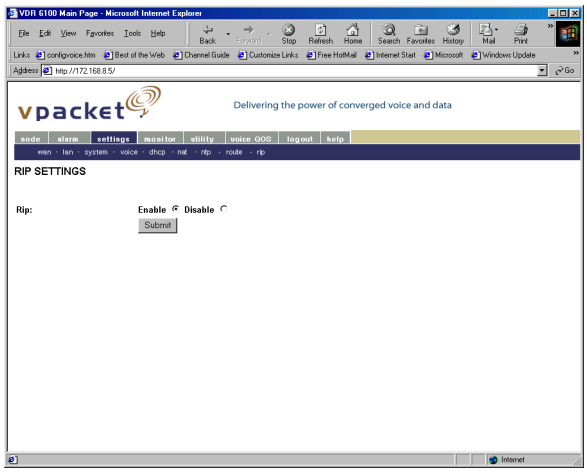


Figure 4-38. RIP Settings window

To enable or disable RIP functions

1. Click **settings** and then **rip**.
2. Click the radio button to enable or disable the RIP function.
3. Click **submit** to accept and save changes.

Monitor options 5

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CHAPTER 5
Monitor options

Overview

From the Monitor window, you can view the IP Routing Table values (Figure 5-1).

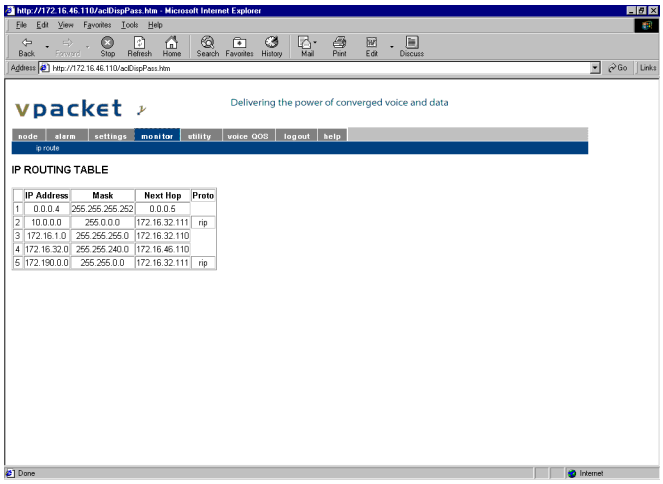

Figure 5-1. IP Routing Table window

Each entry is assigned a sequential entry number. The IP parameters include:

- **IP Address** identifies the machine running the NTP software
- **Mask** displays the subnet mask for the LAN segment
- **Next Hop**
- **Protocol**

CHAPTER 5
Monitor options

Measuring VQoS 6

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Testing voice quality from a specific 6100 VDR, page 70
Viewing voice QoS (VQM) test results, page 71

CHAPTER 6
Measuring VQoS

Overview

The Voice QoS menu provides tools for monitoring Voice QoS from the VDR. From this navigation bar, you are able to perform various monitoring and voice quality testing tasks:

- "Enabling the voice call monitoring" on page 67
- "Viewing QoS results" on page 68
- "Testing voice quality from a specific 6100 VDR" on page 70
- "To view test control results" on page 140

Enabling the voice call monitoring

You can follow these steps to enable the voice call monitoring (VQS) features, which are part of the VQS model.

To enable voice call monitoring

1. Click **Voice QOS**, which opens the Voice QoS Monitor Control window (default).
2. Single click the **All Channels** box and click **Submit** (Figure 6-1).

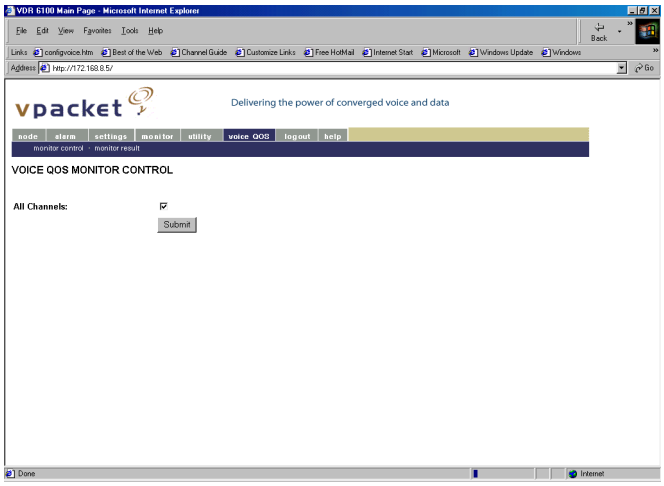

Figure 6-1. Voice QoS Monitor Control window

3. Click **OK** when the system returns the message: Voice QOS monitor enabled (Figure 6-2).

Figure 6-2. Voice QoS monitor enabled message

Viewing QoS results

You can view the Monitor Results Table, which is part of VQS and contains the following details:

- **Call Session** A unique reference number of call sessions terminated in this VDR.
- **TelePort ID** The telephony interface port ID which terminates the call session.
- **Remote Destination** The telephone number associated with the call session. For outgoing calls, the telephone number of the remote termination point. For incoming calls, this field is empty.
- **Start Date** The initiation of call in MM:DD:YYYY format.
- **Start Time** The initiation of call in HH:MM:SS format.
- **Duration** The length of call in HH:MM:SS format.
- **Setup Time** Total time (in milliseconds) for setting up the call session.
- **Codec** The codec used in the call session.

To view Voice QoS results

1. Click **voice QOS** and then click **monitor results**. A new window appears (Figure 6-3).

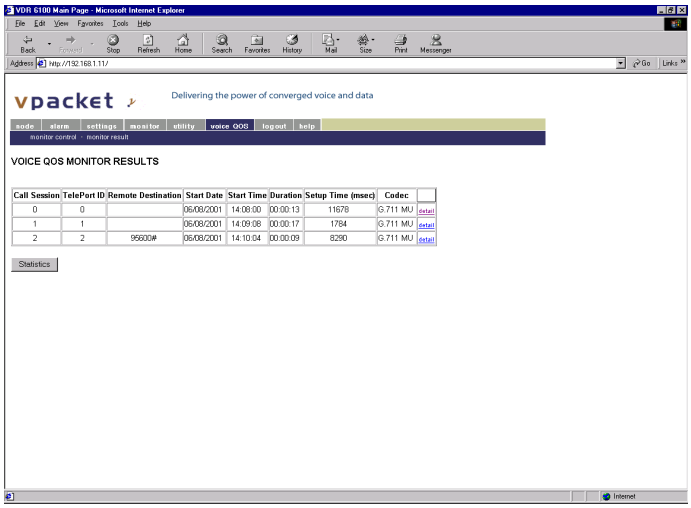

Figure 6-3. Voice QoS Monitor Results window

2. To further evaluate the QoS of one of the displayed sessions, select **detail.**

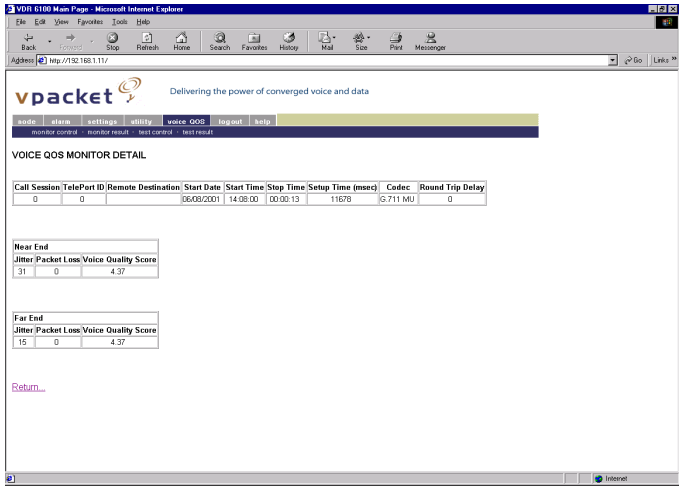

Figure 6-4. Voice QoS Monitor Detail window

This window is divided into three informational (read-only) panels:

- The Call Session lists information specific to this call, captured from the previous VOICE QOS MONITOR RESULTS Window, adding the Round Trip Delay value.
- Near End Displays the Voice QoS data for the near-end termination of the call session. The Voice QoS score rates the quality of the call similar to the Mean Opinion Score (MOS) with 5 representing the highest quality and 1 the lowest.
- Far End Displays the Voice QoS data for the far-end termination of the call session. The Voice QoS score rates the quality of the call similar to the Mean Opinion Score (MOS) with 5 representing the highest quality and 1 the lowest.

The two evaluation devices are the VQM Score and the MOS Estimate.

- VQM ranks voice quality on a 0–6 range with the lower value showing higher quality.
- MOS ranks voice quality on a 1–5 range with the higher value showing higher quality.

Testing voice quality from a specific 6100 VDR

Voice Quality Monitoring (VQM) is the ability to test specific links and view the test results. You can test call quality to a specific destination number offline. Tests take approximately 20 seconds. During the test the 6100 VDR sends a balanced synthetic voice sample to the remote site. The 6100 VDR compares the received sample to the original sample and assigns a quality score. This type of VQM testing provides an accurate quality measure.

To test voice quality of a specific link

1. Click voice **QOS** and then click **test control**.
2. Enter a phone number in the Phone number field (Figure 6-5).

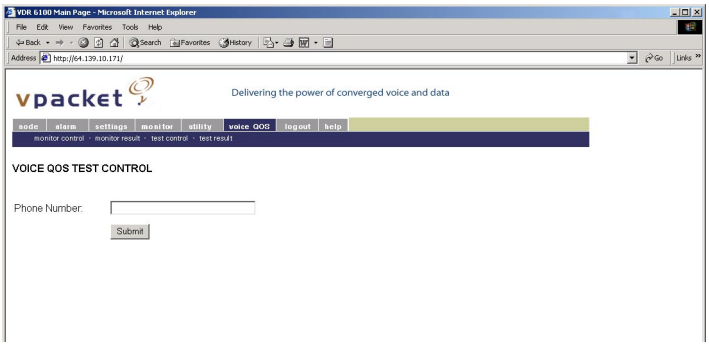

Figure 6-5. Voice QoS Test Control window

3. Click **Submit**.

4. Click **Ok** to acknowledge the test in progress message (Figure 6-6) or click **Cancel** to stop the test. You will need to wait approximately 20 seconds before attempting to view the results.

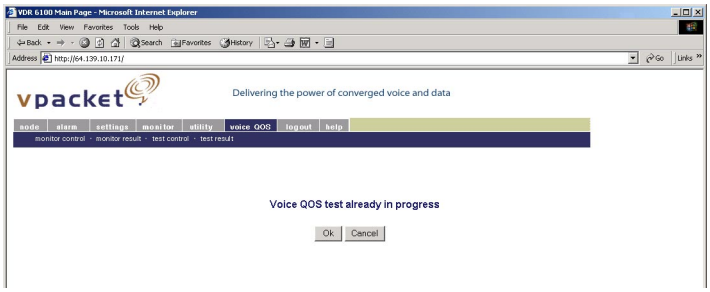

Figure 6-6. Test in progress message

Viewing voice QoS (VQM) test results

You can follow these steps to view your test results.

To view test control results

To view test results, click **voice QOS** and then click **test result**.

CHAPTER 6
Measuring VQoS

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CHAPTER 7
Web utilities

Overview

From the Utility window, you can access the User Management features. At this time, the **ping** and the **trace route** options need to be accessed through the Command Line Interface. Through the Utility window, you can manage user accounts and set and maintain access control lists.

Administering users

You can add, delete, and edit users from the User Management window.

To create a user

1. Click **utility** and then click **user management** (Figure 7-1).

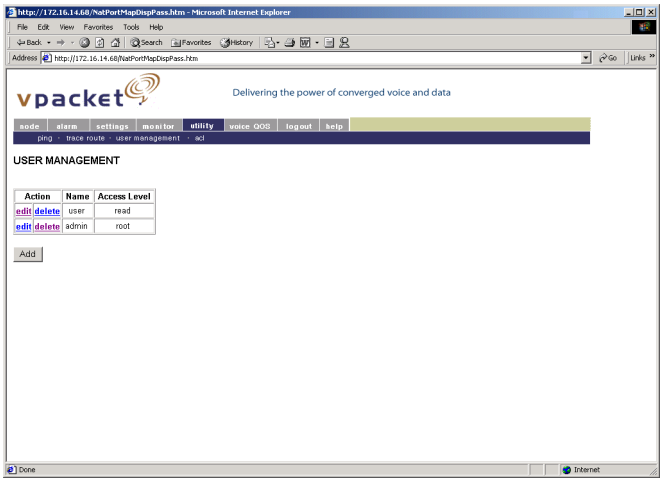

Figure 7-1. User Management window

2. When the User Management window opens, click **Add**.

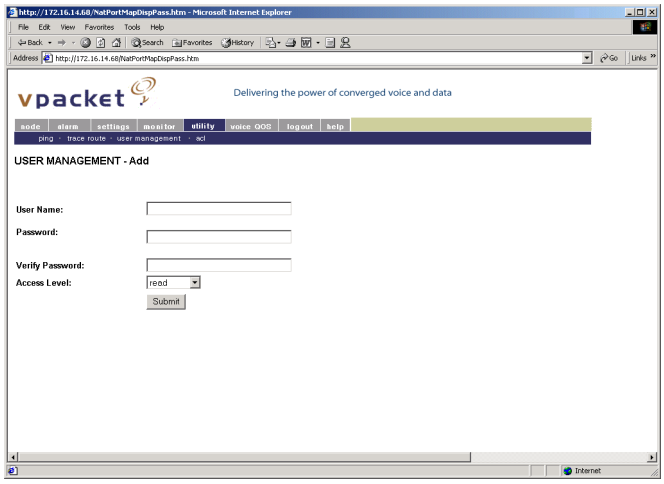

Figure 7-2. User Management-Add window

3. Enter the user name, password and password confirmation.

Note. Access privilege must be configured from the CLI.

4. Click **Submit**.

To edit a user profile

1. Click **utility** and select **user management**.
2. Click **edit** in the far-left column next to the entry that you want to change.

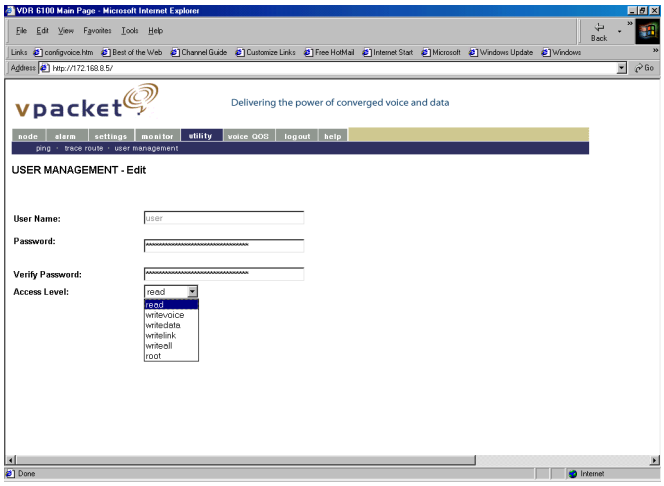

Figure 7-3. User Management-Edit window

3. When the User Management-Edit window appears (Figure 7-3), you can change the user name and password.
4. Click the **Submit** button to save changes.

To delete Users

1. Click **utility** and then click **user management**.

Note. There is no confirmation message–if you click **Delete**, that user is gone.

2. Click the **delete** button next to the user profile that you want to delete.

Using access control lists

You can view access control lists by clicking **utility** and then **acl**.

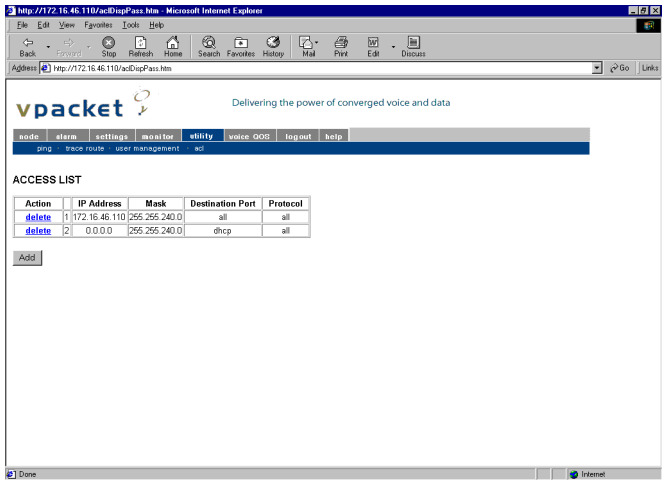

Figure 7-4. Access List entry window

The Access List table lists access control list entries and includes:

- the IP address for each entry
- the subnet mask of each entry
- the destination port
- the valid protocol

From the Access List window you can add or delete an entry from the table.

To add an access control list

1. Click **add** from the Access List window.
2. Enter the IP address and subnet mask for the entry that you are creating.
3. From the Destination Port pull-down list, select a destination port.
4. From the Protocol pull-down list, select a protocol for this entry.

5. Click **Submit** to create the entry or the **Return to Access List** link to disregard changes and return to the previous window.

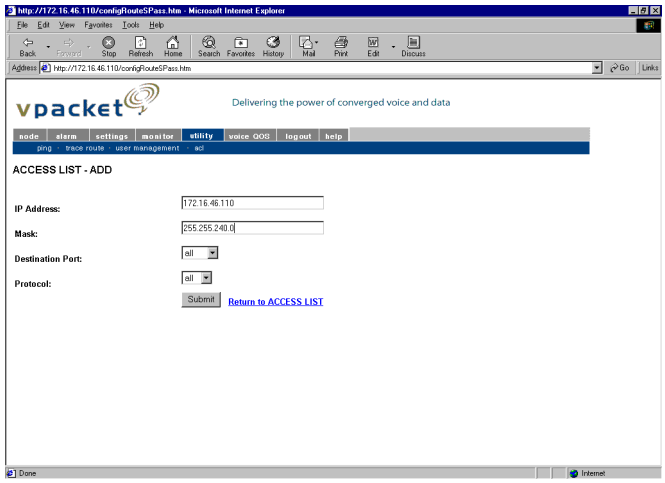

Figure 7-5. Access List-Add window

To delete an access control list

To delete an access control list entry from the Access List table, click delete next to the entry you want to remove from the table. Once removed, you cannot recover the access control list. You will have to create the list again.

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